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--Abstract

A composition useful for the production of foam plastics from disposable pressurized containers is provided. The composition comprises at least one polyisocyanate or isocyanate prepolymer, at least one catalyst for the reaction of the isocyanate group with the OH group, at least one blowing agent and at least one foam stabilizer. One day at the latest after application from said disposable pressurized container, the residue of said composition left in the pressurized container has a diisocyanate monomer content of less than 5.0% by weight, based on the residual contents of the emptied container.--

In the Claims:

Before claim 1, delete "Claims" and insert--What is claimed is:--

Please cancel claims 1-14 and enter new claims 15-68 as follows.

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15. An article useful for the production of foam plastics from disposable pressurized containers comprising a disposable pressurized container containing a composition comprising at least one polyisocyanate or isocyanate prepolymer, at least one catalyst for the reaction of the isocyanate group with the OH group, at least one blowing agent and at least one foam stabilizer, wherein one day at the latest after application from said disposable pressurized container, the residue left in the pressurized container has a diisocyanate monomer content of less than 5.0% by weight, based on the residual

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contents of the emptied container.

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16. An article as claimed in claim 15 wherein said composition has a diisocyanate monomer content of less than 2.0% by weight based on the total contents of the container.

17. An article as claimed in claim 16 wherein said composition has diisocyanate monomer content of less than 2.0% by weight, based on the total contents of the container before its application from said disposable pressurized container.

18. An article as claimed in claim 15 wherein said composition has a diisocyanate monomer content of less than 1.0% by weight based on the total contents of the container.

19. An article as claimed in claim 18 wherein said composition has diisocyanate monomer content of less than 1.0% by weight based on the total contents of the container before its application from said disposable pressurized container.

20. An article as claimed in claim 15 wherein said composition has a diisocyanate monomer content of less than 0.5% by weight based on the total contents of the container.

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21. An article as claimed in claim 20 wherein said composition has diisocyanate monomer content of less than 0.5% by weight based on the total contents of the container before its application from said disposable pressurized container.

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22. An article as claimed in claim 15 wherein said composition contains, before its application from said disposable pressurized container, as said at least one polyisocyanate or isocyanate prepolymer, at least one isocyanate prepolymer with a diisocyanate monomer content of less than 3.0% by weight, based on the prepolymer, an NCO functionality of 2 to 5, an NCO content of 8 to 30% by weight, based on the prepolymer, and a viscosity of 5 to 200 Pa·s at 25°C, as measured in accordance with DIN 53015, the prepolymer having been produced from aliphatic diisocyanates containing 2 to 36 carbon atoms, cycloaliphatic diisocyanates containing 5 to 30 carbon atoms and/or aromatic diisocyanates containing 8 to 20 carbon atoms, each with a boiling point of at most 180°C at 10 mbar.

23. An article as claimed in claim 22 wherein said at least one isocyanate prepolymer is a cyclotrimer of a diisocyanate.

24. An article as claimed in claim 22 wherein said at least one isocyanate prepolymer is a cyclotrimer of a mixture of hexamethylene diisocyanate, isophorone diisocyanate, and mixed trimers thereof.

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25. An article as claimed in claim 22 wherein said at least one isocyanate prepolymer is a prepolymer of diisocyanates or isocyanurates containing NCO groups and polyols.

26. An article as claimed in claim 22 wherein said prepolymer has been produced from diisocyanates with NCO groups differing in their reactivity.

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27. An article as claimed in claim 15 wherein said composition is comprised of:  
50 to 90 % by weight of said at least one polyisocyanate or isocyanate prepolymer,  
0.1 to 5.0 % by weight of said catalyst,  
5 to 35 % by weight of said blowing agent, and  
0.1 to 5.0 % by weight of said foam stabilizer.

28. An article as claimed in claim 15 wherein said at least one polyisocyanate or isocyanate prepolymer is at least one polymer-MDI or polymer-MDI prepolymer with a diisocyanate monomer content of less than 20% by weight, based on the polymer-MDI, an average NCO functionality of greater than 2.7, an NCO content of 26.0 to 30.0% by weight; based on the polymer-MDI, and a viscosity of 5 to 2,000 Pa·s at 25°C according to DIN 53015, the polymer-MDI being obtainable from technical MDI with an average functionality of greater than 2.3 by removal of the diisocyanatodiphenylmethane.

29. An article as claimed in claim 28 wherein said at least one polymer-MDI or

~~polymer-MDI prepolymer is a prepolymer of the polymer MDI and a polyol.~~

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30. An article as claimed in claim 29 wherein said polyol is a diol containing 2 to 6 carbon atoms.

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31. An article as claimed in claim 28 wherein up to 50% by weight of said at least one polymer-MDI or polymer-MDI prepolymer is replaced by a member selected from the group consisting of low-monomer NCO prepolymers of hexamethylene diisocyanate, tolylene-2,6-diisocyanate, isophorone diisocyanate, diphenylmethane-4,4'-diisocyanate, and cyclotrimers of aliphatic diisocyanates containing 4 to 14 carbon atoms.

32. An article as claimed in claim 31 wherein said replacing produces moisture-curing foams differing in their hardness and elasticity.

33. An article as claimed in claim 28 wherein said composition is comprised of:  
50 to 90 % by weight of said at least one polymer-MDI or polymer-MDI prepolymer,  
0.1 to 5.0 % by weight of the catalyst,  
5 to 35 % by weight of the blowing agent, and  
0.1 to 5.0 % by weight of the foam stabilizer.

34. A one-component foam plastic obtainable from the article claimed in claim 15

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by reaction of the composition thereof and moisture.

35. A method of using a one-component foam plastic as claimed in claim 34 wherein said one-component foam plastic is used as an insulating or assembly foam.

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36. A method as claimed in claim 35 wherein said one-component foam plastic is used in situ.

37. A two-component foam plastic obtainable from the article claimed in claim 15 by reaction of the composition thereof as a first component and a polyol as a second component.

38. A method of using a two-component foam plastic as claimed in claim 37 wherein said two-component foam plastic is used as an insulating or assembly foam.

39. A method as claimed in claim 38 wherein said two-component foam plastic is used in situ.

40. A composition useful for the production of foam plastics from disposable pressurized containers comprising at least one polyisocyanate or isocyanate prepolymer, at least one catalyst for the reaction of the isocyanate group with the OH group, at least one blowing agent and at least one foam stabilizer, wherein one day at the

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latest after application from said disposable pressurized container, the residue of said composition left in the pressurized container has a diisocyanate monomer content of less than 5.0% by weight, based on the residual contents of the emptied container.

41. A composition as claimed in claim 40 wherein said composition has a diisocyanate monomer content of less than 2.0% by weight based on the total contents of the container.

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42. A composition as claimed in claim 41 wherein said composition has diisocyanate monomer content of less than 2.0% by weight by weight, based on the total contents of the container before its application from said disposable pressurized container.

43. A composition as claimed in claim 40 wherein said composition has a diisocyanate monomer content of less than 1.0% by weight based on the total contents of the container.

44. A composition as claimed in claim 43 wherein said composition has diisocyanate monomer content of less than 1.0% by weight by weight, based on the total contents of the container before its application from said disposable pressurized container.

45. A composition as claimed in claim 40 wherein said composition has a diisocyanate monomer content of less than 0.5% by weight based on the total contents

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of the container.

46. A composition as claimed in claim 45 wherein said composition has diisocyanate monomer content of less than 0.5% by weight by weight, based on the total contents of the container before its application from said disposable pressurized container.

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47. A composition as claimed in claim 40 wherein said composition contains, before its application from said disposable pressurized container, as said at least one polyisocyanate or isocyanate prepolymer, at least one isocyanate prepolymer with a diisocyanate monomer content of less than 3.0% by weight, based on the prepolymer, an NCO functionality of 2 to 5, an NCO content of 8 to 30% by weight, based on the prepolymer, and a viscosity of 5 to 200 Pa·s at 25°C, as measured in accordance with DIN 53015, the prepolymer having been produced from aliphatic diisocyanates containing 2 to 36 carbon atoms, cycloaliphatic diisocyanates containing 5 to 30 carbon atoms and/or aromatic diisocyanates containing 8 to 20 carbon atoms, each with a boiling point of at most 180°C at 10 mbar.

48. A composition as claimed in claim 47 wherein said at least one isocyanate prepolymer is a cyclotrimer of a diisocyanate.

49. A composition as claimed in claim 47 wherein said at least one isocyanate prepolymer is a cyclotrimer of a mixture of hexamethylene diisocyanate, isophorone

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diisocyanate, and mixed trimers thereof.

50. A composition as claimed in claim 47 wherein said at least one isocyanate prepolymer is a prepolymer of diisocyanates and/or isocyanurates containing NCO groups and polyols.

51. A composition as claimed in claim 47 wherein said prepolymer has been produced from diisocyanates with NCO groups differing in their reactivity.

52. A composition as claimed in claim 40 wherein said composition is comprised of:

50 to 90 % by weight of said at least one polyisocyanate or isocyanate prepolymer,  
0.1 to 5.0 % by weight of said catalyst,  
5 to 35 % by weight of said blowing agent, and  
0.1 to 5.0 % by weight of said foam stabilizer.

53. A composition as claimed in claim 40 wherein said at least one polyisocyanate or isocyanate prepolymer is at least one polymer-MDI or polymer-MDI prepolymer with a diisocyanate monomer content of less than 20% by weight, based on the polymer-MDI, an average NCO functionality of greater than 2.7, an NCO content of 26.0 to 30.0% by weight, based on the polymer-MDI, and a viscosity of 5 to 2,000 Pa·s at 25°C according to DIN 53015, the polymer-MDI being obtainable from technical MDI with an average functionality of greater than 2.3 by removal of the

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diisocyanatodiphenylmethane.

54. A composition as claimed in claim 53 wherein said at least one polymer-MDI or polymer-MDI prepolymer is a prepolymer of the polymer MDI and a polyol.

55. A composition as claimed in claim 54 wherein said polyol is a diol containing 2 to 6 carbon atoms.

56. A composition as claimed in claim 53 wherein up to 50% by weight of said at least one polymer-MDI or polymer-MDI prepolymer is replaced by a member selected from the group consisting of low-monomer NCO prepolymers of hexamethylene diisocyanate, tolylene-2,6-diisocyanate, isophorone diisocyanate, diphenylmethane-4,4'-diisocyanate, and cyclotrimers of aliphatic diisocyanates containing 4 to 14 carbon atoms.

57. A composition as claimed in claim 56 wherein said replacing produces moisture-curing foams differing in their hardness and elasticity.

58. A composition as claimed in claims 53 wherein said composition is comprised of:

50 to 90 % by weight of said at least one polymer-MDI or polymer-MDI prepolymer,  
0.1 to 5.0 % by weight of the catalyst,

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5 to 35 % by weight of the blowing agent, and  
0.1 to 5.0 % by weight of the foam stabilizer.

59. A one-component foam plastic obtainable from the composition claimed in claim  
40 by reaction of the composition thereof and moisture.

60. A method of using a one-component foam plastic as claimed in claim 59 wherein  
said one-component foam plastic is used as an insulating or assembly foam.

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61. A method as claimed in claim 60 wherein said one-component foam plastic is  
used in situ.

62. A two-component foam plastic obtainable from the composition claimed in claim  
40 by reaction of the composition thereof as a first component and a polyol as a  
second component.

63. A method of using a two-component foam plastic as claimed in claim 62 wherein  
said two-component foam plastic is used as an insulating or assembly foam.

64. A method as claimed in claim 63 wherein said two-component foam plastic is  
used in situ.

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~~65. A method of producing an article as claimed in claim 15 wherein diisocyanate is distilled from said at least one polyisocyanate or isocyanate prepolymer.~~

~~66. A method of producing an article as claimed in claim 15 wherein diisocyanate monomers are polymerized by addition of trimerization catalysts immediately before or after foaming.~~

~~67. A method of producing an article as claimed in claim 15 wherein diisocyanate monomers are reacted with an OH compound added to the composition remaining behind after foaming.~~

~~68. A method as claimed in claim 67 wherein said OH compound is a monoalcohol..~~